UNIVERSITY OF MARYLAND EXTENSION

TPM/IPM Weekly Report
for Arborists, Landscape Managers & Nursery Managers

Commercial Horticulture **July 27, 2018**

In This Issue...

Pest Predictive Calendar

IPMnet
Integrated Pest Management for Commercial Horticulture

extension.umd.edu/ipm

If you work for a commercial horticultural business in the area, you can report insect, disease, weed or cultural plant problems **(include location and insect stage)** found in the landscape or nursery to sklick@umd.edu

Coordinator Weekly IPM Report:
Stanton Gill, Extension Specialist, IPM for Nursery, Greenhouse and Managed Landscapes, sgill@umd.edu. 301-596-9413 (office) or 410-868-9400 (cell)

Regular Contributors:
Pest and Beneficial Insect Information: Stanton Gill and Paula Shrewsbury (Extension Specialists) and Nancy Harding, Faculty Research Assistant
Disease Information: Karen Rane (Plant Pathologist), David Clement (Extension Specialist), and Joe Roberts (Plant Pathologist for Turf)
Weed of the Week: Chuck Schuster (Extension Educator, Montgomery County)
Cultural Information: Ginny Rosenkranz (Extension Educator, Wicomico/Worcester/Somerset Counties)
Fertility Management: Andrew Ristvey (Extension Specialist, Wye Research & Education Center)
Design, Layout and Editing: Suzanne Klick (Technician, CMREC)

Record Rains

By: Stanton Gill

Well, last Friday I mentioned the mini-drought we were experiencing and that it would have consequences. Mark Schlossberg, ProLawn Plus, Inc., sent in a photo of a maple showing fall color in July which is obviously a stress symptom.

A maple is showing early fall color due to drought stress
Photo: Mark Schlossberg, ProLawn Plus Inc.

Since last Friday, the rains started up again and we are back to excessive rain periods. George Mozal, Stansbury Tree, reported 12" of rain from Saturday to Wednesday. BWI reported excessive rain and as of July 24, this July is the wettest July on record (15.04" as of 7/25/18) for Baltimore and the second wettest month so far (August 1955 recorded rainfall of 16.35"). The impact of these weather swings will show up in August and September.

Side Effect of Unusual Weather

By: Stanton Gill

Kevin Nickle, ProLawn Plus, Inc., sent us some unusual pictures. He visited sites in Timonium where black locust trees are cropping up in lawns. The weather was perfect for black locust seed set and the weather is just right for rapid growth of this very tough tree to grow in landscapes.

These black locust trees are popping up in turf in Timonium
Photo: Kevin Nickle, ProLawn Plus, Inc.

Ambrosia Beetles - 2nd Generation Active

By: Stanton Gill

I received a package at CMREC this week from a nursery in Maryland near the Pennsylvania border. It was a bolt of wood that had been drilled and filled with ethyl alcohol as a bait log used in the nursery row. The bolt had several fresh hits from ambrosia beetle activity. I had Rachel Ross, student intern, dig the beetles out of the log so I could identify them. She dug out six live beetles. They are *Xylosandrus crassiusculus*, the granulate ambrosia beetle. This activity is the second generation for this beetle. Check susceptible trees in the nursery this week. Protectant sprays of bifenthrin (Onyx) or permethrin (many trade names on market) can be applied to protect trunks of susceptible species.

This bolt filled with ethyl alcohol is still producing about 20 frass tubes by ambrosia beetle after six adults were extracted

Peachtree Borer Damage

By: Stanton Gill

Damage from peachtree borers is showing up this week. For the last 3 weeks, I have been reporting high catches of male peachtree borers in baited pheromone traps. We are now receiving pictures of oozing on trunks of plums, cherry trees and cherry laurel plants. I put in the control options last week. Not much use trying contact materials since the larvae are now active in the cambium of the plant.

The oozing at the base of this cherry laurel is a result of peachtree borer activity

Insect Activity on Fruit

By: Stanton Gill

If you are treating your customers' fruit trees or growing fruit trees in your nursery this season, you know it has been extremely tough to control diseases with the excessive rain. Now we are moving into the second wave of insect activity.

Kari Peter and her associates at Penn State Experiment Station in Biglerville report upcoming activity from the oriental fruit moth and codling moth. O-boy!

Here is what they are reporting this week (July 23, 2018);
"*Codling moth, Oriental fruit moth, tufted apple bud moth, and obliquebanded leafroller are ready to start their next generation activities. The juvenile stages of all four species are capable of causing severe fruit injuries detectable at harvest. It is also time to plan the monitoring of brown marmorated stink bug. During late summer and fall high numbers of BMSB adults are capable of moving into orchards from the woods or field crops and will cause significant damage to fruit until the harvest. Woolly apple aphid colonies are being observed in some orchards across the region.*"

For control options, applications of Spinosad or Altacor will provide pretty good protection. The hard part is figuring out when the rains will stop so you can make an application.

Lots and Lots of Insects

By: Stanton Gill

We received an email from a perennial nursery operation in central Maryland. When they came into their operation in the morning the ground was littered with dead insects. They sent in a picture. These are commonly called mayflies or Canadian soldiers. The name, mayfly, is misleading since with over 3000 species, we have these aquatic insects emerging from May until frost. Mayflies are aquatic insects belonging to the order Ephemeroptera. This order is part of an ancient group of insects with a very strange behavior. When adults emerge from the aquatic larval stage they come out in mass numbers, usually after dark, and fly about trying to find a date and mate. They mate in flight. They party all night and are dead by the morning. Mayfly species don't even have mouths and digestive systems because they don't live long enough to need them. This is why the nursery manager reported millions of dead bodies all over the growing area. The mayflies had a big party the night before. It might make a great T-Shirt – "Party Until You Die". There is nothing to do about this insect and some consider it a sign of good luck and future fortune. Maybe, let's see.

Since they live for no more than a day, adult mayflies do not have mouthparts
Photo: Christine Klass

Need to Apply More Fertilizer?

By: Andrew Ristvey

The heavy rains that we have been experiencing here in Maryland may have leached your applied nitrogen through the soil profile. Your plants may be showing signs of nutrient related deficiencies. It is possible that you may need to apply more fertilizer on your plants, but based on your nutrient management plan, maybe you have applied your required rates already. This now may be restricting you from applying any more fertilizer. However, if you think you will suffer production/profit loss, you may still be able to re-apply fertilizer, but you must update your records and there are specific requirements in doing so.

My best advice is to contact your Maryland Department of Agriculture's Nutrient Management Regional Office and discuss the issue with your regional MDA nutrient management specialist. The MDA specialist contacts are below and website for the regional offices and specialists is found at MDA's nutrient management website at http://mda.maryland.gov/resource_conservation/counties/Nutrient%20Management%20Regional%20Offices.pdf

REGIONAL OFFICES
Region 1: ALLEGANY, GARRETT, and WASHINGTON COUNTIES
Keith Potter, Nutrient Management Specialist, keith.potter@maryland.gov
Tel: 301-777-1747 (x 3507) Fax: 301-777-7632, 12407 Naves Cross Road, N.E., Cumberland, MD 21502

Region 2a: CARROLL, and FREDERICK COUNTIES
Moana Himes, Nutrient Management Specialist, moana.himes@maryland.gov
Tel: 301-695-2803 (x 8604) Fax: 301-694-5744, 92 Thomas Johnson Drive, Suite 110, Frederick, MD 21702

Region 2b: ANNE ARUNDEL, HOWARD, and MONTGOMERY COUNTIES
Kenny Favorite, Nutrient Management Specialist, kenny.favorite@maryland.gov
Tel: 301-695-2803 (x 8605) Fax: 301-694-5744, 92 Thomas Johnson Drive, Suite 110, Frederick, MD 21702

Region 3a: Vacant
Tel: 410-841-5959 Fax: 410-841-5950, 50 Harry S. Truman Parkway, Suite 201, Annapolis, MD 21401

Region 3b: CALVERT, CHARLES, PRINCE GEORGE'S and ST. MARY'S COUNTIES
Weylin Anderson, Nutrient Management Specialist, weylin.anderson@maryland.gov
Tel: 301-475-8402 (x 122) Fax: 301-475-8391, 26737 Radio Station Way, Suite B, Leonardtown, MD 20650

Region 4: BALTIMORE, CECIL, and HARFORD COUNTIES
Darren Alles, Nutrient Management Specialist, darren.alles@maryland.gov
Tel: 410-638-4828 (x5220) Fax: Not available. 3525 Conowingo Road, Suite 500, Street MD 21154

Region 5a: KENT, QUEEN ANNE'S, and TALBOT COUNTIES
Howard Callahan, Nutrient Management Specialist, howard.callahan@maryland.gov
Tel: 410-822-8126 Fax: 410-822-8353, 28577 Mary's Court, Suite 4, Easton, MD 21601

Region 5b: CAROLINE, and DORCHESTER COUNTIES
Steve Szelestei, Nutrient Management Specialist, steve.szelestei@maryland.gov
Tel: 410-822-8120 Fax: 410-822-8353, 28577 Mary's Court, Suite 4, Easton, MD 21601

Region 6: SOMERSET, WICOMICO, and WORCESTER COUNTIES
Steven Dorsey, Nutrient Management Specialist, steve.dorsey@maryland.gov
Tel: 410-677-0802 (x 4) Fax: 410-543-6660, 27722 Nanticoke Road, Unit #2, Salisbury, MD 21801

Crows and Ravens Make a Comeback

By: Stanton Gill

Nursery managers, homeowners, and commercial fruit growers are noticing an increase in the numbers of crows and ravens active in Maryland in 2018. A little over 20 years ago, crows seemed to be plentiful. Then, West Nile virus decimated their population. They appear to be making a comeback in a big way.

It is often difficult to tell the difference between a crow and a raven. Ornithologists tell me crows are about half the size of ravens. The raven is about the size of a redtailed hawk and the crow is about the size of a pigeon. We are seeing more crows than ravens. Both are general feeders and can be found tearing trash bags open and eating fruits and insects. The insect eating part is great. It is the other feeding that is causing the problems. Crows and ravens are showing up in homeowners' landscapes and in commercial orchards. They peck large fruit and consume large amounts of blueberries, raspberries, blackberries, plums, and any other fruit they can find. They tend to feed in packs and the damage is extensive. I spoke with several pick-your-own operations in Maryland, and they all report a dramatic increase in the amount of crow and raven damage in 2018.

It is interesting to hear nurseries report that when ravens, which are heavier than crows, land on nursery plants they like to perch on central leaders. Their weight combined with a powerful lift-off when they fly causes the central leader to break, causing the nursery plant to become malformed. They are extremely intelligent birds that can figure out complex situations and communicate with the ravens and crows in their community.

Dealing with the bird damage is the hard part. If you have good, legal, non-toxic methods of dealing with crows and ravens let me know at sgill@umd.edu so we can share this with others.

Japanese Beetle Activity

By: Stanton Gill

Nancy Rechcigl, Syngenta Comapny, came up from Florida to visit a couple of nurseries where we were testing out different rates of the systematic insecticide Mainspring for Japanese beetle control. Brian Kunkel, University of Delaware Extension. and I conducted two years of field work on this product in 2015-16, applying it as both a spray and soil drench applications. In 2018, we wanted to see if you can use lower rates.

Japanese beetles are still feeding at this time
Photo: Stanton Gill, UME

First off, I thought Japanese beetle activity had finished for the season, but I was WRONG. They were still very active on new growth of ornamental plums, lindens, zelkova and sassafras. In the nurseries we visited, we looked at 3 rates of Mainspring applications, all made one time at the end of June. The rates were 4 oz, 6 oz and 8 oz/100 gallons of water. The 4 oz rate gave a level of control, but it appears to have lasted only 10 - 14 days. We saw a lot of adult beetle activity at 4 weeks on the plants treated at 4 oz/100 gallon. The 8 oz/100 gallon rate was better than the 4 oz rate after 4 weeks. This nursery uses a small mist blower attached to their tractor and sprayed one side of the plants as they went down the row. We could see better control on the side they directed the spray and worse control on the other side that did not receive direct spray.

A second nursery applied Mainspring in late June and used a rate of 6 oz/100 gallons. The owner mentioned he used 80 gallons per acre to get thorough coverage. He said if you were not spraying completely you might as well go home (or something close to this effect - just more colorfully said). Most growers use 40 - 50 gallons of spray per acre. He said the Mainspring held up very well over the 4-week period. He commented that birch trees, that in other years were heavily defoliated, look very good this year. Some tip growth that flushed out with the excessive rain had some feeding damage this week, but the growth was not present when the original spray was made. At this point in the season, adult Japanese beetles are concentrating on the blooms of hibiscus in his nursery. Brian and I saw this similar end of the season feeding in 2015 and 2016. The females seem to like feeding on pollen and nectar before entering the ground to lay eggs. A final sugar high before birthing.

Catalpa Sphinx Moth Caterpillars (Catalpaworms)

Jeff Miller, J.W. Townsend Landscapes, found catalpa sphinx moth caterpillars, defoliating a catalpa in Charlottesville, VA on July 25. Jeff reported that "the tree had been pretty well two weeks ago, only to find it mostly defoliated" when he checked this week. The amount of black and yellow coloration varies on this caterpillar which has a distinctive black 'horn' on the end of its abdomen. Larvae feed gregariously to the third instar and then become more solitary feeders in later instars. There are multiple generations per season, so this caterpillar is active from June through the fall.

Control: Parasitic wasps help keep caterpillar populations in check. Bt can be used for small larvae and other labelled insecticides for larger caterpillars if needed.

Catalpa sphinx moth caterpillars can reach high numbers and defoliate catalpa trees
Photo: Jeff Miller, J.W. Townsend Landscapes

Hickory Tussock Moth Caterpillars

Zachary Ainslie, Bartlett Tree Experts, found a few hickory tussock moth caterpillars on July 19 in northeastern Pennsylvania. These caterpillars prefer to feed on hickories, pecans, and walnuts, but can be found on a wide range of woody plants. The hairs can cause rashes. Occasionally, they can surge to high numbers, but usually they are not enough of a problem to warrant control. There is one generation per year.

The hairs of the hickory tussock moth caterpillar can irritate the skin of some people
Photo: Zachary Ainslie, Bartlett Tree Experts

Yellow-necked Caterpillars

Greg Kenel, Creative Landscapes by Gregory, and Jake Murphey found yellow-necked caterpillars feeding this week. Greg found them on a cherry in Frederick. We will continue to see these caterillars active into the fall.
Control: Parasitic wasps and tachinid flies help keep caterpillar populations in check. Bt can be used for small larvae and other labelled insecticides for larger caterpillars if needed.

Yellow-necked caterpillars feed gregariously and can defoliate small trees
Photo (left): Jake Murphey
Photo (right): Greg Kenel, Creative Landscapes by Gregory

Mites Galls on Birch

Mark Schlossberg, ProLawn Plus, Inc. found galls on birch that are caused by mites. These mites do not usually affect the overall health of the tree so control is not neccessary.

Galls can be unsightly on foliage, but they usually do not cause signicant problems
Photo: Mark Schlossberg, ProLawn Plus, Inc.

Giant Ichneumon Wasps

Luke Gustafson, UME, and Bill McGee, Outdoor Creations, looked at declining oaks in Waldorf on July 26. They noticed about a dozen ichneumon wasps buzzing around a dead oak, presumably ovipositing. These wasps feed on wood-boring horntail wasps. The female lays an egg on a horntail grub by drilling through the bark to reach the grub.

Female ichneumon wasps use their ovipositer to drill through bark and lay eggs on horntail wasp grubs
Photo: Luke Gustafson, UME

Paper Wasps

The paper wasp, *Polistes fuscatus*, is active spring through fall. Connie Bowers, Garden Makeover Company found one flying around various vegetables plants. Paper wasps overwinter as adults, sometimes in homes, but also in places like hollow trees and wood piles. They often become active on warm winter and early spring days. Paper wasps are good predators of caterpillars and also prey on other insects.

***Polistes fuscatus* wasps vary in color; the one in the photo is a darker morph**
Photo: Connie Bowers, Garden Makeover Company

Digger Wasps

Digger wasps, *Scolia* sp., are starting to become active in landscapes now. One was spotted here at the research today. The adult females lay eggs in the grubs of scarab beetles in turf. Look for the wasps flying in figure eight patterns over turf as we move into August.

Digger wasps, *Scolia* sp., lay eggs in scarab beetle grubs, such as Japanese beetles

Beneficial of the Week

By: Paula Shrewsbury, UMD

Destroyers of spider mites!

Two-spotted spider mites, *Tetranychus urticae*, are active during the heat of the summer so two-spotted spider mites should be quite happy this summer! Two-spotted spider mites are herbivorous mites that feed on a wide range of deciduous trees, shrubs, and herbaceous and annual plants. These mites are commonly found on the underside of foliage, have a sucking type mouthpart that removes chlorophyll from plant cells, and their feeding results in fine yellow stipples (spots) or stippling of the foliage. Fine webbing is also associated with spider mites. I was looking around the landscape this week in downtown Hagerstown. There was a diverse planting of herbaceous perennials that included *Asclepias* (milkweed), a food resource for monarch butterfly caterpillars. However, the two-spotted spider mites had also found the *Asclepias*. The exciting part of this "*Asclepias* ecosystem" was that predatory lady beetles known as spider mite destroyers, *Stethorus punctillum* (Coccinellidae), had found the two-spotted spider mites!

Spider mite destroyer (a type of lady beetle) adult among shed skins and eggs of spider mites. They are bigger than spider mites but still very small.
Photo: Sonya Broughton, Department of Agriculture & Food Western Australia, Bugwood.org

Spider mite destroyer larva among shed skins and active spider mites.
Photo: UC Statewide IPM Program, University of California

There are numerous predators of plant feeding spider mites such as predatory mites, lady beetles, dusty wings, and lacewings. Lady beetles and predatory mites are the most common predators and likely have the greatest impact on spider mite populations. There were numerous spider mite destroyer adults and larvae, both stages are predacious, on the *Asclepias* plants. These little guys are voracious predators of spider mites. Spider mite destroyer adults are relatively tiny (less than 2mm) for a lady beetle, somewhat hairy (light colored fine hairs), and solid black. Spider mite destroyers feed as adults and larvae on a variety of spider mite species. Adult females will lay eggs by scattering them singly on foliage infested with spider mites. Spider mite destroyer eggs hatch and small grayish-black larvae begin to feed voraciously on the various life stages (eggs, nymphs and adults) of spider mites. It takes about 3 weeks for spider mite destroyers to go from egg to adult. Adult females usually live 1 to 3 months and lay 100 to 300 eggs each. When monitoring for spider mites and their predators be sure to look for spider mite

destroyer pupae or empty pupal cases which are black to reddish in color, in addition to the larvae (grayish with numerous fine hairs) and adults (tiny black spots). All life stages are usually found on the underside of foliage. Spider mite destroyers can build up to high populations when spider mites are abundant, as I saw on the *Asclepias* plants. These little lady beetles can significantly reduce spider mite populations and their damage to plants, especially in conjunction with predatory mites. Select and implement IPM practices that will give these good beetles a chance to increase their populations and decrease spider mite populations and damage.

Weed of the Week

Chuck Schuster, University of Maryland Extension

Recent interest in spotted lanternfly has caused a renewed interest in this potential weed tree, tree-of-heaven. If spotted lanternfly were to come to Maryland, it would, in its adult stage most likely be found on this tree. Tree-of-Heaven, *Ailanthus altissima*, also known as ailanthus, sumac, stinking sumac, and Chinese sumac, is found in many locations throughout the United States. This tree invades urban, agricultural, forests, landscapes, and agricultural areas as a fast growing tree and displaces the more desirable tree species. This tree was introduced into the United States in the late 1700's as an ornamental species. Grown in nurseries and sold for use as a shade and street tree, even with its root suckers and prolific seed production, it was not considered a problem for many years.

Photo 1

Tree-of-heaven has smooth gray bark (photo 1), and can have a diameter at breast height (DBH) of thirty six inches. Rarely growing much taller than 70 feet, it is a tree that will shade out and out compete other desired species of trees. Leaves are alternate along a single stem (photo 2) that will have 15 or more individual leaflets. Leaflets are lanceolate with entire margin, except that near the base leaflets can be found with one to five teeth. Leaves and stems, when crushed, will emit an unpleasant odor, which is why it has some of its nicknames. The roots can produce saplings up to ten feet away from the main trunk (photo 3) and will do so when the tree is cut if appropriate actions are not taken. The trunk bark is tan to brown in color. Fruit is produced and forms seeds in clusters that have a winged structure called samaras (photo 4). This tree is a prolific seed producer - a mature tree can produce as many as 300,000 seeds per year.

Photo 2

Control of this weed tree can be done using several methods. Using only cutting is not the preferred method as stump and root suckers will appear quickly, and additional treatment will be necessary. Small forests can grow from roots when the main stem is cut and not properly treated with an herbicide. A basal bark application to smaller trees (six to ten inch diameter) will be successful. Apply the herbicide on the trunk during the late winter to early spring time period (mid February to mid April) and applications can continue on through the summer months for the smaller trees. Use 20% triclopyr (Garlon 4) with an oil base carrier. Ready to use products include Pathfinder II, are also available with the same active ingredients and contain the basal oil. Hack and squirt (stem injection) is more effective on the larger trees and needs to be done during the summer months, with an immediate herbicide application after cutting. Products that will work with this method include triclopyr at a 20 % rate. Glyphosate has been used but is not always effective, and may require more than one application. Foliar application

Photo 3

Photo 4

Photo 5

of herbicides will work, but the site must be free of desirable plant species as these herbicides will damage or destroy most species. Products for foliar applications include triclopyramine (Garlon 3A) using a rate of 2% AI, glyphosate (Roundup, Rodeo, Accord and Razor Pro) using a 2% AI solution, both being applied during active growth, from early June through early September. Other products have been used for foliar sprays but have a residual soil activity that will prevent non target plants from growing.

Degree Days (As of July 25)

Aberdeen, MD (KAPG)	1986	Annapolis Naval Academy (KNAK)	2445
Baltimore, MD (KBWI)	2209	College Park (KCGS)	2159
Dulles Airport (KIAD)	2189	Frederick (KFDK)	2118
Ft. Belvoir, VA (KDAA)	2270	Greater Cumberland Reg (KCBE)	2035
Gaithersburg (KGAI)	2116	Martinsburg, WV (KMRB)	2021
Natl Arboretum.Reagan Natl (KDCA)	2544	Salisbury/Ocean City (KSBY)	2245
St. Mary's City (St. Inigoes, MD-KNUI)	2365	Westminster (KDMW)	2258

The Weather Underground site for degree days is no longer functioning as it had been for us to get degree days. We are returning the site that we had used for several years before chaning this yeaar.

Important Note: We are now using the Online Phenology and Degree-Day Models site.

Use the following information to calculate GDD for your site: Select your location from the map

Model Category: All models Select Degree-day calculator
Thresholds in: Fahrenheit F Lower: 50 Upper: 95
Calculation type: simple average/growing dds Start: Jan 1

2018 MDA Pesticide Recycling Program

The Maryland Department of Agriculture is offering the empty plastic pesticide container recycling program in 2018. You can view the locations and requirements in the online brochure. Montgomery County is a new location this year and will also accept clean containers from Prince George's County as well as D.C., as they do not have a collection.

Clean Water³ - Reduce, Remediate, Recycle Conference

For Growers, Consultants, Advisors, and Educators

Monday, August 6, 2018 (8 AM to 4:15 PM)

Location: University of Maryland, College Park Edward St. Johns Learning and Teaching Center 4131 Campus Drive, College Park, MD 20742

Are you curious about the pros and cons of recycling runoff water from an agricultural operation? Do you want to learn from a National team of experts about how to reduce, remediate and use that return water on your ornamental crops? Then this one-day conference is for you.

Co-sponsored by the Maryland Nursery, Greenhouse and Landscape Association and University of Maryland Extension, this conference will be held in the spectacular Edward St. John's Learning and Teaching Center at the University of Maryland, and includes a catered lunch. The program will provide six Nutrient Management CEU's from the Maryland Department of Agriculture, as well as six Certified Crop Advisor Credits.

MNLGA Members $30 Non-members $45 Walk-ins 60$
Extension Educators – Register by emailing jlc@umd.edu
Register and view the full agenda at https://tinyurl.com/UM-WATER3

2018 FALCAN Truck and Trailer Safety Seminar

Wednesday, August 8, 2018
8:00am Registration
8:45am - 2:45pm Seminar (Begins promptly)
Coffee, donuts, and lunch are provided!
Urbana Volunteer Fire Hall,3602 Urbana Pike, Urbana, MD 21704

Register online at: https://www.eventbrite.com/e/falcan-truck-trailer-safety-seminar-tickets-47112218915

Seminar Topics Include:

- Featured speaker Deputy First Class Jason Noblick on "Driver Safety and Safety Rules for the Road"
- Requirements/inspection points for pickups, one-ton and larger trucks and trailers
- Lights, brakes, truck equipment; Fuel carrying requirements
- Permits, licenses, load covers, tie-downs, etc.
- State and Federal laws as they apply to various industries/types of loads
- Scale entry, Driver/Operator requirements
- Accident reporting, Penalty structure
- Outdoor real vehicle and trailer inspection demonstration
- Record keeping requirements: insurance, hours of service, driver and vehicle files

Who Should Attend: Contractors, Drivers, anyone who uses trucks and trailers.
Speakers: All instruction by Maryland State Police and Frederick County Sheriffs Department

Cost: $75.00/ individual. Limited Seating: Register now! E-mail contact: judy@alpineservices.com

Sponsored by FALCAN and Friends

CONFERENCES

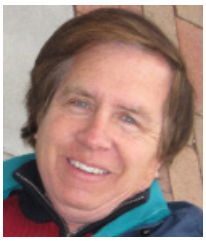
Conference information is posted at:
http://extension.umd.edu/ipm/conferences

Cut Flower Operation Tour
September 12, 2018
Location: St. Mary's County (Loveville and nearby sites)
Details will be available later in the summer

New Plants for Nursery Growers
October 25, 2018
Location: Country Springs Nursery, Woodbine, MD
Details will be available later in the summer

Advanced IPM PHC Short Course
January 7-10, 2019
Location: University of Maryland, College Park, MD
Contact: Amy Yaich, Admin. Assist. II, 301-405-3911
Email: umdentomology@umd.edu
Information: https://landscapeipmphc.weebly.com/
Recertification credits will be posted on the website Recertification page as awarded by participating states.

CONTRIBUTORS:



Stanton Gill
Extension Specialist
sgill@umd.edu
410-868-9400 (cell)

Paula Shrewsbury
Extension Specialist
pshrewsb@umd.edu

Karen Rane
Plant Pathologist
rane@umd.edu

Chuck Schuster
Extension Educator
cfs@umd.edu

David Clement
Plant Pathologist
clement@umd.edu

Andrew Ristvey
Extension Specialist
aristvey@umd.edu

Ginny Rosenkranz
Extension Educator
rosnkrnz@umd.edu

Nancy Harding
Faculty Research
Assistant

Joe Roberts, Plant Pathologist (Turf)
robertsj@umd.edu

Thank you to the Maryland Arborist Association, the Landscape Contractors Association of MD, D.C. and VA, the Maryland Nursery and Landscape Association, Professional Grounds Management Society, and FALCAN for your financial support in making these weekly reports possible.

Photos are by Suzanne Klick or Stanton Gill unless stated otherwise.